(p. 323), the very curve of whose tail enabled us to detect the true value of the design, before we recognized in the corner the "hall-mark" of Mr. Wolf's initials.

Nothing disgusts a mechanic so much as to witness a loss of power in an engine of any sort—a pulley unskilfully applied, a lever acting at a manifest disadvantage, a pinion obviously misfitted. This, then, is our feeling when we regard Dr. Hartwig's works. Here is a German gentleman with an amount of application uncommon among any but those of his own nation, having the advantages of a very accurate acquaintance with English and of scientific tastes, who yet will insist upon fitting out our countrymen with a knowledge of what they either know already or may easily know of themselves. On the other hand is a vast mass of scientific literature in a language which comparatively few Englishmen comprehend, and which it would be of the greatest use for them to understand. Why should not Dr. Hartwig employ his powers in aiding them in this respect? Why should he not publish, in London, translations of some of those valuable treatises which are still sealed books to English naturalists? We are not defending our ordinary educational course, we are but simply giving utterance to a fact, when we say that a large majority of our fellow-labourers in this country are unable to become acquainted, except at a great sacrifice of time, with much that has been already worked out, and oftentimes admirably worked out, by the industrious brains of our Teutonic neighbours.

Phosphorescence, or the Emission of Light by Minerals, Plants, and Animals. By T. L. Phipson, Ph.D., F.C.S. London: Reeve & Co., 1862. 12mo.

The phenomena referred to by Dr. Phipson, in the little work before us, under the general term "phosphorescence," are of a very varied nature, and can scarcely be regarded as all falling under one category. They include all emissions of light which cannot be accounted for directly as phenomena of electricity or combustion; nay, some even of the latter, such as the luminosity of phosphorus, are considered as examples of phosphorescence by our author. Certain cosmical and meteorological phenomena, such as the zodiacal light, the apparent train of light left in the track of many aërolites, luminous fogs, &c., are also mentioned as examples of phosphorescence; indeed the author seems to have been anxious to omit noticing no luminous phenomenon the cause of which cannot readily be explained. Apart from all these doubtful instances, we have, however, a large number of phenomena to which no other term than that of phosphorescence can be applied: there are numerous mineral, vegetable, and animal substances to which the name of "light-bearers" may with justice be applied, and the emission of light from which is still entirely unexplained. We have minerals which give out light after exposure to the sun, and others which present similar phenomena when heated to a temperature far below that of incandescence. From others light is given off when they are rubbed or

violently fractured: the same thing is observed in other mineral substances while undergoing particular chemical or molecular changes.

Of the phenomena described by the author as examples of phosphorescence in flowering plants, most, if not all, must be regarded as originating in electrical action; but the luminosity of certain Fungi rests upon a good foundation. The catalogue of luminous animals is a long one, and the chief points connected with them are well discussed by Dr. Phipson, in whose pages the reader will find an interesting account of a great number of curious phenomena.

In his theoretical view of the nature of phosphorescence, the author endeavours to bring all these multifarious phenomena under the same category; and here, we think, he is scarcely successful. At the base of his theory lies the correlation of the physical forces and their mutual convertibility; such a conversion of forces into light he assumes to take place in phosphorescent bodies, and thus thinks he has accounted for their phosphorescence. Thus the insolation of Bologna phosphorus, according to him, sets up certain vibrations (electric, chemical, or magnetic) in that body, which cease on its being removed into the dark, and, in ceasing, cause the emission of a proportionate amount of light. In like manner, on the application of heat to a body which emits light at a comparatively low temperature, we should have a certain amount of heat converted into light when a given point is reached. In these cases, such an hypothesis may certainly be the true one, but it is still far from explaining the phenomena; for a theory of phosphorescence ought at least to show some plausible reason why light is emitted under certain conditions by one body and not by others.

The luminosity of the Fungi is regarded by Dr. Phipson as due to chemical action; but, curiously enough, that of animals is ascribed to the conversion of nerve-force into light, although the luminous matter even of the higher forms of phosphoric animals (insects and Myriapods) will continue shining when smeared over other objects. Under these circumstances, and considering that decayed wood and putrescent animal matter are often luminous in the dark, we should prefer regarding the phosphorescence both of animals and plants as due to a chemical action, the subjection of which to the will in the former does not seem to present any special difficulty.

MISCELLANEOUS.

Notice of three Wombats in the Zoological Gardens.

By Dr. J. E. Gray, F.R.S. &c.

There are at present in the Zoological Gardens in the Regent's Park three kinds of Wombats from Australia: two were sent from the Acclimatization Society of South Australia, at Victoria; but nothing is known of their peculiar habitat. They are evidently distinct from the common silver-grey Wombat, which we have long had alive.